

AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Original) A golf ball comprising:

an array of flat loop passive transponders constructed of electrically conductive material having respective planar inner and outer faces, wherein one passive transponder is arranged along each of three mutually perpendicular axes having a common point of intersection such that each passive transponder is equidistant from the point of intersection and each passive transponder is perpendicular to each of the other passive transponders to provide a substantially omni directional radiation pattern;

said transponders being configured with a discontinuous loop having confronting edges spaced apart to form a slot of predetermined gap;

a layer of electrically insulating material disposed on one face of said loop;

dielectric material disposed in said slot to cooperate in forming a capacitor, whereby the effective capacitive reactance may be controlled by the width of said gap and the choice of said dielectric material;

a ball core disposed inside said transponder loops; and

a cover covering said transponders.

2. (Original) The golf ball of claim 1 wherein:
said array of passive transponders is disposed on the surface of said core.
3. (Original) The golf ball of claim 1 wherein:
said array of passive transponders is encapsulated within said core.
4. (Original) The golf ball of claim 1 wherein:
said array of passive transponders is disposed on one surface of said cover.
5. (Original) The golf ball of claim 1 wherein:
said flat loop is constructed of copper foil.
6. (Original) The golf ball of claim 1 wherein:
said dielectric material is in the form of solder mask compound.
7. (Original) A golf ball comprising:
at least one flat loop inductor constructed from electrically conductive material having planar faces;
said loop being configured with confronting edges spaced apart to form a slot of predetermined gap at one point about the circumference of said loop;
a layer of electrically insulating material disposed on one face of said loop;

dielectric material disposed in said slot to cooperate in forming a capacitor, whereby the effective capacitive reactance may be controlled by the width of said gap and the choice of said dielectric material;

a ball core disposed inside said transponder loops; and

a cover covering said transponders.

8. (Currently Amended) A system for finding lost golf balls comprising:

a golf ball incorporating at least one passive transponder configured to resonate at a selected radio frequency and to emit a radio frequency return signal upon being illuminated by a source RF signal at said selected frequency;

an RF transmitter/receiver including a circuit operable to illuminate said passive transponder with said source signal to charge said passive transponder and including a circuit operable to detect said return signal, and further including a helical antenna for transmission of said source signal and detection of said return signal; and

at least one indicator included within said RF transmitter/receiver, responsive to said ~~return~~ response signal, wherein said indicator communicates audio/visual signal strength information to a user.

Claims 9 and 10 cancelled.

11. (Original) A passive transponder comprising:

a flat loop formed from electrically conductive material, wherein said loop is of generally circular configuration having planar faces;

said loop being configured with confronting edges spaced apart to form a slot of predetermined gap at one point about the circumference of said loop;

a layer of electrically insulating material disposed on one face of said loop; and
dielectric material disposed in said slot to cooperate in forming a capacitor,
whereby the effective capacitive reactance may be controlled by the width of said gap and the choice of said dielectric material.

12. (Original) The passive transponder of claim 11 wherein:

said loop has a diameter of .600 inches, a width of .050 inches, and a material thickness of .0028 inches.

13. (Original) The passive transponder of claim 11 wherein:

said electrically conductive material is copper foil.

Claim 14 cancelled.

15. (Original) The passive transponder of claim 11 wherein:

said dielectric material is solder mask compound.

16. (Original) A flat loop inductor array comprising:

an array of flat loop inductors, wherein one flat loop inductor is arranged along each of three mutually perpendicular axes having a common point of intersection such that each flat loop inductor is equidistant from the point of intersection and each flat loop inductor is perpendicular to each of the other passive transponders to provide a substantially omni directional radiation pattern;

said flat loop inductors are formed as a flat loop from electrically conductive material, wherein said loop is of generally circular configuration having planar faces;

said loop being configured with confronting edges spaced apart to form a slot of predetermined gap at one point about the circumference of said loop;

a layer of electrically insulating material disposed on one face of said loop; and

dielectric material disposed in said slot to cooperate in forming a capacitor, whereby the effective capacitive reactance may be controlled by the width of said gap and the choice of said dielectric material.

Claims 17 – 27 cancelled.

28. (New) The system of Claim 8, wherein:

said transponder includes a loop inductor and a capacitor the capacitance and inductance thereof being selected to resonate at said radio frequency.

29. (New) The system of Claim 28, wherein:
said transponder is conformed to continue resonating subsequent to the illumination thereof by said source RF signal.

30. (New) The system of Claim 8, wherein:
said transponder includes a loop inductor connected to a capacitor, the capacitance and inductance thereof being selected to form a resonating circuit resonating at said radio frequency during and subsequent to the illumination thereof by said source RF signal.

31. (New) The system of Claim 30, wherein:
said inductance is determined by the dimensions of said loop inductor and said capacitance is determined by the separation between the ends of said loop inductor.

32. (New) The system of Claim 8, wherein:
said transponder includes a loop inductor and a capacitor connected to form a tank circuit, the capacitance and inductance thereof being selected to resonate at said radio frequency.

33. (New) The system of Claim 32, wherein:
said radio signal is an electromagnetic signal; and

said tank circuit is conformed to store that portion of said electromagnetic signal that is inductively intercepted by said loop inductor.

34. (New) A golf ball comprising:

an array of loop inductors each in circuit with a corresponding capacitor disposed within the interior of said golf ball along mutually orthogonal planes, each loop inductor defining an inductive axis, the respective inductive axes being aligned to intersect the others at substantially equal separation from the corresponding loop inductor.

35. (New) A golf ball according to Claim 34, wherein:

each said loop inductor is formed as an incomplete planar loop of a generally circular configuration including confronting edges at the ends thereof separated from each other to define said corresponding capacitor.

36. (New) Apparatus according to Claim 35, wherein:

said confronting edges of each said loop inductor are substantially parallel to each other and aligned along a selected angle relative the radius of said loop inductor.

37. (New) A golf ball responsive to a radio frequency signal, comprising:

an array of tank circuits each conformed to resonate with said radio frequency signal and each including a corresponding loop inductor in circuit with a corresponding capacitor disposed within the interior of said golf ball along mutually orthogonal planes,

each loop inductor defining an inductive axis, the respective inductive axes being aligned to intersect the others at substantially equal separation from the corresponding loop inductor.

38. (New) A golf ball according to Claim 37, wherein:

each said loop inductor is formed as an incomplete planar loop of a generally circular configuration including confronting edges at the ends thereof separated from each other to define said corresponding capacitor, the dimensions of each said loop and the separation between each said confronting edges being selected to define a resonance substantially at the frequency of said radio frequency signal.

39. (New) Apparatus according to Claim 38, wherein:

the separation between said confronting edges of each said loop inductor are substantially parallel to each other and are further modified in capacitance by selecting the alignment thereof relative the radius of said loop inductor.